SCOTTSDALE AIRPORT

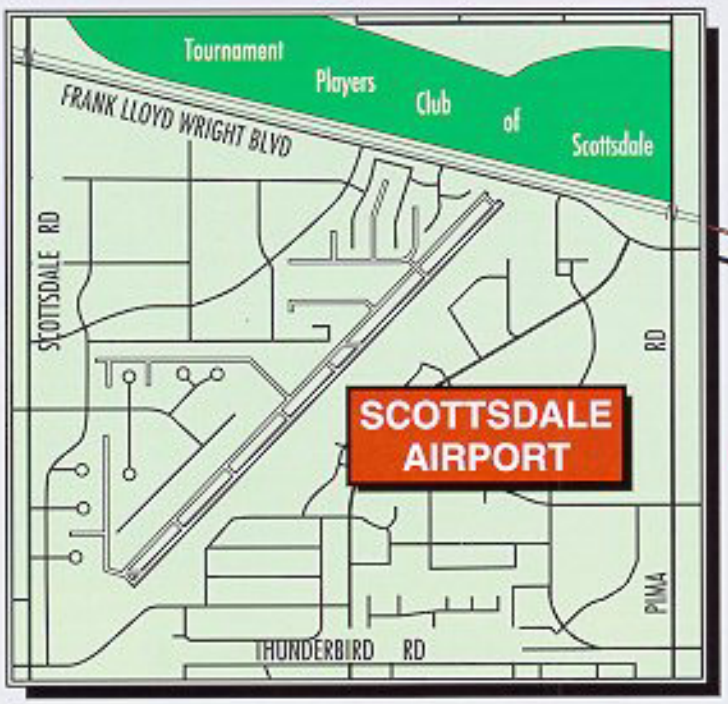
F.A.R. PART 150 NOISE COMPATIBILITY STUDY
EXECUTIVE SUMMARY

Aircraft noise is an inevitable by-product of an airport. For many people, aircraft noise can be an unwanted intrusion into the peace and quiet they seek at home. As operator of the airport, the City of Scottsdale has since 1985 undertaken significant voluntary efforts to reduce the exposure of airport-area residents to aircraft noise. This brochure explains what the City has been doing and is proposing in the recently completed noise compatibility study to promote noise compatibility at Scottsdale Airport.

ABOUT THE AIRPORT

Located in the northeast portion of the metropolitan area, Scottsdale Airport is one of several airports serving Greater Phoenix. It is an important center for corporate aviation and is the hub of a thriving industrial and office park. Scottsdale Airport also serves an important role as a reliever airport for Phoenix-Sky Harbor International Airport. Reliever airports provide alternative landing sites in metropolitan areas for general aviation pilots. The objective is to reduce congestion at large, metropolitan commercial service airports.

Scottsdale Airport began in the 1940's as Thunderbird II Airfield and was used to train U.S. Army Air Corps pilots during World War II. After the War, the airfield was sold to the Seventh-Day Adventist Church. In June 1966, the City, with funding assistance from the Federal Aviation Administration (FAA), bought 226 acres of the property for the development of a municipal airport. The construction of a paved 4,800-foot by 75-foot runway



began in October of the same year. An aircraft parking apron, connecting taxiway, and aircraft turnarounds were also constructed. The runway opened in June 1967.

In the years that followed, many improvements were made at the airport, including the construction of parallel taxiways, a general aviation terminal, hangars, tiedowns, an FAA Flight Standards District Office, an FAA Airport Traffic Control Tower, airfield lighting and descent aids, and a runway extension in 1982.

AN EXPLANATION OF TERMS

Air Traffic Control - The Federal government, acting through the Federal Aviation Administration (FAA), is responsible for control of airspace and the operation of air traffic control systems at the nation's airports. Airport operators have no direct control over airspace management and air traffic control.

Altitude - Pilots and air traffic controllers describe altitude in terms of mean sea level (MSL), which means simply "above sea level." The elevation of Scottsdale Airport is 1,500 feet. To estimate the altitude of aircraft above the airfield, subtract 1,500 from the MSL altitude. South and west of the airport, the land lies roughly at airport elevation. North and east of the airport, the land slopes upward, reaching 1,800 to 2,200 feet MSL from 3.5 to 6.5 miles north of the airport.

Decibel - The physical unit most commonly used to describe sound levels. It is a logarithmic measure of sound pressure. A 10 decibel increase in sound is equal to a tenfold increase in sound energy.

DNL - Yearly Day-Night Noise Level - a measure of cumulative noise exposure. DNL levels are shown as contour lines on a map. They represent the total aircraft noise exposure on an average day during the year of study. Nighttime noise is given a 10 decibel penalty in the computation of DNL values. Research has shown that human response to noise is strongly correlated with cumulative noise exposure. The FAA requires the use of DNL in all F.A.R. Part 150 studies. FAA guidelines identify the 65 DNL contour as the threshold of significant impact for aircraft noise.

F.A.R. Part 150 - This refers to Part 150 of the Federal Aviation Regulations (14 CFR Part 150). Part 150 describes rules and guidelines for the preparation of airport noise compatibility studies with Federal funding assistance.

Runway Numbers - Runways are numbered based on their compass bearing, rounded to the nearest 10 degrees. The zero is then dropped from the runway label. A runway has two labels, depending on its direction of use. The runway at Scottsdale is called Runway 3 when aircraft are landing and taking off to the northeast and Runway 21 when aircraft are landing and taking off to the southwest.

A HISTORY OF NOISE ABATEMENT

As the jet age dawned in the 1960s, aircraft noise became an important problem around many of our nation's airports. While jet traffic at Scottsdale was not nearly as heavy as at many other airports, noise did become a concern in the late 1960s. In 1970, an informal noise abatement procedure for jets flying under visual flight rules (VFR) was established. In 1980, the Scottsdale City Council passed an ordinance restricting selected activities at the airport that were causing noise complaints. In 1985, additional noise abatement procedures were formalized through the issuance of an FAA Tower Order by the local air traffic control manager. That Order has been refined through the years and remains in force.

In 1985, the City decided to prepare a comprehensive noise compatibility study under the rules and guidelines of Federal Aviation Regulation (F.A.R.) Part 150. The FAA had promulgated F.A.R. Part 150 to implement legislation enacted by Congress in 1979. The law provided Federal funding assistance for airports that decided to undertake noise compatibility studies. After FAA approval of a completed "Part 150 Study," the airport operator would become eligible for funding to carry out recommendations of the study. Scottsdale was one of the earliest participants in the Part 150 program. The City's proposed Noise Compatibility Program (NCP) was approved by the FAA on December 19, 1986. The NCP included several noise abatement measures, land use measures, and continuing program measures which were implemented in the following years. The noise contours were updated again in 1991.

Late in 1993, the City decided it was time to take a new look at the airport noise situation. The City wanted to produce more up-to-date noise exposure maps and review the need for new or refined measures to improve noise abatement and reduce potential noise in the airport area. The City contracted for the preparation of an updated F.A.R. Part 150 Noise Compatibility Program while a new Airport Master Plan was developed. This report summarizes the updated noise compatibility program.

THE STUDY PROCESS

The updated Noise Compatibility Program for Scottsdale Airport was developed through a consultative process which included considerable technical analysis. The City hired the airport consulting firm, Coffman Associates, to provide technical assistance for the study. They were responsible for noise measurements, computer noise modeling, and land use analysis.

The City also established a Planning Advisory Committee as an informal advisory group to review and comment on the consultant's process, progress, findings and recommendations. That 26-member Committee included representatives of the FAA, local governments, airport users, and local citizens groups.

Local residents were invited to several public information workshops and public hearings during and after the preparation of the study. The City Council formally accepted the Noise Compatibility Program on January 21, 1997 and authorized its submittal to the FAA for review and approval.

THE UPDATED NOISE COMPATIBILITY PROGRAM

The updated Noise Compatibility Program for Scottsdale Airport includes three plan elements: a **noise abatement element** involving aircraft operating procedures; a **land use management element** involving land use planning and zoning actions; and a **program management element** to administer, monitor, and update the Program.

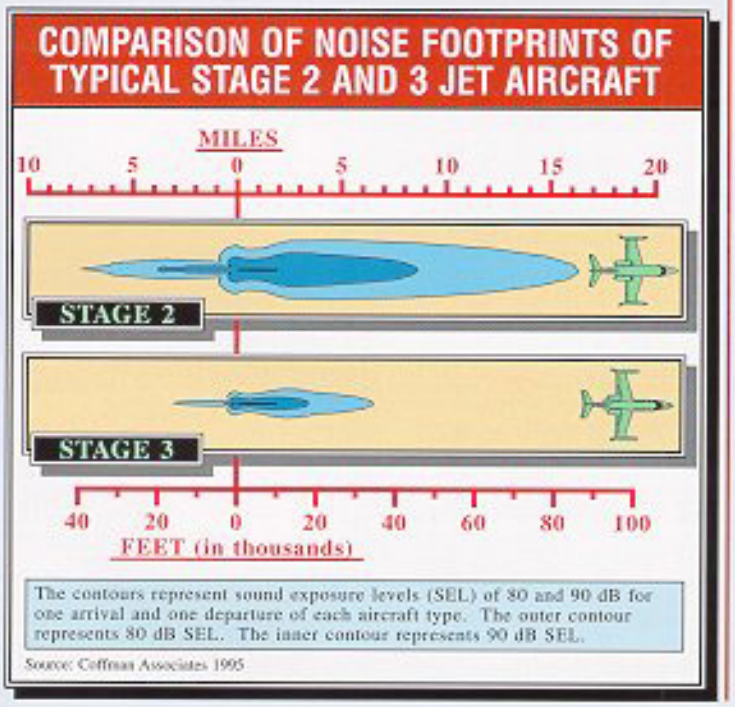
NOISE ABATEMENT ELEMENT

Many noise abatement alternatives were studied in the Noise Compatibility Program, including changes in flight tracks, runway use, and aircraft operating procedures. These were evaluated for their effect on airspace, safety, cost, and potential for noise reduction. The final plan includes twelve noise abatement measures. Ten are continuations of existing policies and regulations.

1. **Continue to encourage aircraft not in compliance with F.A.R. Part 36, Stage 3 to use Runway 21 for landings and Runway 3 for takeoffs.**

This existing policy applies to the loudest jet aircraft using the airport. These are known as Stage 2 jets. They are encouraged to fly over the less densely developed area north of the airport rather than south of the airport whenever possible. At times, heavy air traffic or unfavorable winds prevent this procedure from being followed.

The graphic below shows the dramatically lower sound levels of a typical Stage 3 aircraft compared with an older and louder Stage 2 aircraft.



2. **Continue to encourage right turns as soon as practical when departing Runway 21.**

This existing policy promotes noise abatement by minimizing the amount of residential land south and west of the airport overflown by aircraft taking off to the southwest on Runway 21. The idea is to get aircraft north of the developed urban area as quickly as possible. This procedure also reduces the potential for traffic conflicts with aircraft using other airports west and south of Scottsdale.

3. **Request use of NBAA standard noise abatement departure procedures.**

The airport management encourages jet operators to use the "standard noise abatement departure procedure" developed by the National Business Aircraft Association (NBAA) or equivalent procedures developed by aircraft manufacturers. The NBAA procedure calls for a reduction of thrust and a quiet climb after aircraft reach 1,000 feet above the ground. This creates less noise than a normal takeoff and climb procedure.

4. **Continue requiring maintenance run-ups to be done at the north end of Kilo ramp, and continue prohibiting maintenance run-ups between 10:00 p.m. and 7:00 a.m.**

Maintenance run-ups can be highly annoying. Unlike overflights, which get louder and then softer in a predictable way and over a brief period, run-ups have no predictable pattern. They can sometimes last a very long time compared to overflights. They can be especially annoying at night and in the early morning when people are trying to sleep. Maintenance run-ups will continue to be prohibited from 10:00 p.m. to 7:00 a.m., except for emergencies. During the day, maintenance run-ups will continue to be done at the north edge of the parking ramp on the west side of the airport. This puts aircraft as far away as possible from the largest areas of housing.

5. **On Runway 21: Continue to prohibit stop-and-go operations, intersection departures, formation departures, and simulated single-engine takeoffs and go-arounds by multi-engine aircraft.**

These flight procedures were prohibited by City Council Ordinance in 1980. They would cause overflights and noise to be more disturbing than necessary for residents south of the airport. By prohibiting these, noise and the frequency of low overflights in the residential areas south of the airport have been decreased. These restrictions will be continued to assure these benefits in the future.

6. **On Runway 21: Continue to discourage straight-out and left turns after departure.**

This existing policy directly supports Noise Abatement Measure 2. Aircraft taking off on Runway 21 and flying straight-out or turning left would fly over much more residential area than if they turn right as soon as practicable.

7. **Runway 3: Continue to discourage a right-hand traffic pattern, long straight-in approaches, and right turns on departure before the airport boundary.**

This existing policy discourages flight procedures that would cause overflights and noise to be more disturbing than necessary for residents south and east of the airport.

8. **Continue to prohibit touch-and-go and stop-and-go operations between 9:30 p.m. and 6:00 a.m.**

This restriction was originally enacted in 1980. Multiple approaches and touch-and-go's can be annoying to residents near an airport because they are repetitive. They can be especially annoying at night when people are trying to sleep.

9. **Continue preferential use of Runway 3.**

Runway 3 is currently designated in the Tower Order on noise abatement as the calm wind runway. That means Runway 3 should be used not only when winds are from the north and east, but also when winds are calm or very light. This results in more takeoffs to the north, where residential development is much less dense than to the south, than would otherwise occur. Because takeoffs tend to be louder than approaches, this policy reduces the number of people exposed to aircraft noise. A noise analysis showed that this runway use program results in far fewer people exposed to noise between 55 and 70 DNL than would occur if runway use was evenly divided between both runway directions.

10. **Continue to discourage descents below 2,500 feet MSL for practice instrument approaches.**

This existing policy promotes noise abatement by reducing repetitive, low overflights. While low approaches are discouraged at Scottsdale, they are not expressly forbidden. These procedures must be practiced at least occasionally by pilots to learn and maintain their proficiency.